

### REMARKS

The Office Action dated August 16, 2007 has been reviewed and carefully considered. Claims 1-4 have been withdrawn. Claims 5-11 remain pending, with claim 5 being the only independent claim. Reconsideration of the above-identified application, as amended and in view of the following remarks, is respectfully requested.

In response to various matters listed on page 2 of the Office Action, the specification has been amended to include the reference to the application's PCT priority filing and a replacement abstract has been submitted. However, the specification has not been amended to include section headings as described in paragraph 2 of the Office Action. Applicant respectfully submits that 37 CFR §1.77(b) discloses a *suggested* format for the arrangement of the disclosure. Further, Applicant respectfully submits that the present disclosure follows the suggested format where applicable. With regard to 37 CFR §1.77(c), which was not cited in the Office Action, Applicant respectfully submits that section headings are suggested but not required, as 37 CFR §1.77(c) clearly states the sections defined in paragraphs (b) (1) through (b) (11) "should" be preceded by a section heading. Applicants respectfully decline at this time to amend the disclosure to include same.

Claims 5, 6 and 8-11 were objected to for various formalities. Applicant thanks the Examiner for the suggested language in paragraph 4 of the Office Action. The claims have been amended in accordance with those suggestions.

With the above noted amendment to the claims, Applicant believes that the reasons for the Examiner's objections have been overcome. Applicant respectfully requests the objections be withdrawn.

Claims 5-11 stand rejected under 35 USC 102(b) as being anticipated by Takayama et al., U.S. Patent No. 5,589,694 (Hereinafter, "Takayama").

Applicant respectfully disagrees with, and explicitly traverses, the Examiner's reason for rejecting the claims.

Claim 5, as amended, recites:

An active matrix pixel device comprising  
a plurality of polycrystalline silicon islands supported by a substrate, one of the polycrystalline silicon islands providing a channel and doped source/drain regions of a thin film transistor,  
the active matrix pixel device further comprising a PIN diode which includes a p-type doped region and an n-type doped region separated by an amorphous silicon intrinsic region, wherein the amorphous silicon intrinsic region overlies and contacts at least a part of one of the polycrystalline silicon islands which provides one of the p-type or n-type doped regions of the PIN diode.

As recited above, claim 5 contains the feature that the amorphous silicon intrinsic region overlies and contacts at least a part of one of the polycrystalline silicon islands of a thin film transistor, which part provides one of the p-type or n-type doped regions of the PIN diode. An example of this feature is illustrated in Figure 3 of the application wherein the amorphous silicon intrinsic region (item 25) overlies a part of the n-type doped drain region of thin film transistor 10a (as well as overlies a part of the p-type doped source region of thin film transistor 10b).

Takayama relates to a semiconductor device having a thin film transistor and thin film diode wherein amorphous silicon regions are crystallized:

Amorphous silicon in impurity regions (source and drain regions or N-type or p-type regions) of TFT and TFD are crystallized and activated to lower electric resistance, by depositing film having a catalyst element such as nickel (Ni), iron (Fe), cobalt (Co) or platinum (Pt) on or beneath an amorphous silicon film, or introducing such a catalyst element into the amorphous silicon film by ion implantation and subsequently crystallizing the same by applying heat annealing at an appropriate temperature (Abstract).

Takayama teaches various TFT and TFD structures in which crystallized silicon film can be implemented. These include those structures depicted in figures 1C-1E and 9A-9C, which are cited by the Examiner in paragraph 6 of the Office Action. None of these cited figures teaches the feature of claim 5 of the invention that the amorphous silicon intrinsic region overlies and contacts at least a part of one of the polycrystalline silicon islands of a thin film transistor, which part provides one of the p-type or n-type doped regions of the PIN diode.

In particular, in Fig. 1D of Takayama, the PIN diode (58P - 58I - 58N) is physically separated from the polycrystalline silicon islands of the thin film transistors 57a-c. In fact, a 1<sup>st</sup> insulator layer 56 lies between the PIN diode and each of the TFTs. Fig. 9A of Takayama also fails to teach the feature of the silicon intrinsic region (19i) overlying at least a part of one of the polycrystalline silicon islands of a thin film transistor.

Takayama does not teach or imply the feature that the amorphous silicon intrinsic region overlies and contacts at least a part of one of the polycrystalline silicon islands of a thin film transistor, which part provides one of the p-type or n-type doped regions of the PIN diode.

A claim is anticipated only if each and every element recited therein is expressly or inherently described in a single prior art reference. Takayama cannot be said to anticipate the present invention, because Takayama fails to disclose each and every element recited. Accordingly, Claim 5 is patentable over Takayama.

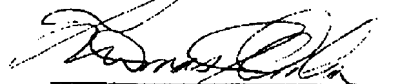
Having shown that Takayama fails to disclose each and every element claimed, applicant submits that the reason for the Examiner's rejection of claim 5 has been overcome and can no longer be sustained. Applicant respectfully requests reconsideration, withdrawal of the rejection and allowance of claim 5.

With regard to claims 6-11, these claims ultimately depend from claim 5, which have been shown to be not anticipated and allowable in view of the cited references. Accordingly, claims 6-11 are also allowable by virtue of their dependence from an allowable base claim.

For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,

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Date: November 16, 2007

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